

- II. Claims 24-27, drawn to a method for making a composite material, classified in class 156, subclass 60.

Applicants elect to prosecute the claims of Group I (claims 1-23). This election is made without traverse with the understanding that these claims may be rejoined, as indicated in paragraph 6 of the Office Action, upon allowance of the claims of Group I.

Drawings

The Examiner has objected to the drawings because they "do not include the following reference signs mentioned in the description: Figure 2 does not include reference signs 11 and 13." (Office Action at page 3, paragraph 7.) Figure 2 has been amended to insert the reference number "11" between reference numbers 32 and 12 as disclosed in the specification on page 10, lines 30-31. No new matter has been added to Figure 2. As to reference sign 13, Applicants note that sign 13 is not mentioned in the description of Figure 2 (see specification as filed, page 10, line 23 through page 11, line 12), and its inclusion in Figure 2 is, accordingly, not required; Applicants therefore request reconsideration and withdrawal of the Examiner's objection to the drawing based on reference sign 13.

Claim Objection

Claim 14 has been objected to because it "teaches 'an orientation ratio of at least about 2'" and "ratios, by definition, are relationships between two or more things." Accordingly, the Examiner has suggested rewriting the claimed ratio value as "2:1". Applicants respectfully traverse this requirement. The specification defines the term "orientation ratio" as "the multiplication product of the extent to which a film is expanded in any one direction during the orientation process." (Specification at page 9, lines 11-13.) Further, the specification states, "[t]hus, an orientation ratio of, e.g., 2 in the machine direction, indicates that the film has been expanded to twice its original dimension in the machine direction of the film." (Specification at page 9, lines 13-15.) Therefore, as defined in the specification, the orientation ratio is properly expressed as a single value. Applicants respectfully request reconsideration and withdrawal of the Examiner's objection to claim 14.

Claim Rejections

Claims 1-23 have been rejected under 35 U.S.C. §103(a). Claims 1-12 and 15-23 have been rejected as being unpatentable over Akao (USPN 4,469,741) in view of Foster (USPN 5,968,630). Claims 1-23 have been rejected as being unpatentable over Foster in view of Deibel (USPN 6,358,599). Applicants respectfully traverse these rejections.

The claimed combination can be said to cover obvious subject matter only if the references expressly or impliedly suggest the claimed combination, or if the examiner can demonstrate that the skilled artisan would have been motivated to combine the references in such a manner as to derive the claimed invention. Applicants respectfully submit that these requirements have not been met in either of the rejections discussed below.

Claims 1-12 and 15-23: Akao/Foster

The Office Action alleges, *inter alia*, that:

Akao does not specifically disclose a film sheet wherein at least one edge of the film extends beyond a corresponding edge of the foam sheet. Foster, however, is directed to a laminate film/foam flooring composition comprising a polyethylene film layer on a polyethylene foam layer wherein the film layer extends beyond one edge of the foam layer... Therefore, it would have been obvious to the skilled artisan at the time this invention was made to combine the teachings of Akao and Foster, motivated by the desire to provide a flooring material with efficient installation, reduced labor costs, and improved vapor barrier.

(Office Action at page 5.) No proper combination of these references, however, provides the claimed invention.

Akao is directed to a laminated sheet for use as a wrapping material or construction material. The sheet described by Akao is a composite of film/adhesive/porous-sheet/adhesive/film, wherein the first and second films are uniaxially molecularly oriented and must be positioned so that one is molecularly oriented in a direction 45°-90° with respect to the other. (Akao at column 2, lines 61-65 and claim 1.) Akao also makes no mention of water vapor transmission, and does not suggest that vapor barrier characteristics (improved or not) are exhibited by the sheet described therein.

As recognized by the examiner, the Akao material does not have a film sheet that extends beyond a corresponding edge of the foam sheet. Akao also does not mention the

moisture vapor barrier properties of the sheet (and films) therein, let alone suggest that good vapor barrier properties are desired. Thus, not only does Akao fail to disclose the edge-extension feature of the present invention, it does not even recognize a major reason behind it. In the claimed structure, at least one edge of the second film extends beyond a corresponding edge of the foam sheet, and this extension provides a continuous water vapor barrier, which is highly desirable in flooring applications. (Specification at, *inter alia*, page 10, line 32 to page 11, line 10.) Akao fails to recognize the importance of achieving an improved moisture vapor barrier for film/foam laminates used in flooring applications. As such, Akao cannot be said to render obvious the solution to a problem that it did not recognize to exist.

Other characteristics distinguish the present invention from Akao as well. The sheet described by Akao includes the layers film/adhesive/porous sheet/adhesive/film. In contrast, the present invention comprises the layers film/foam/film. While a bonding material may be used to adhere the film to the foam, it is not required by the present invention. Other methods of adhering the layers may also be employed, including the preferred method of heat bonding (Specification at page 11, lines 13-30) or reactive surface modification (Specification at page 10, lines 6-14). Akao, on the other hand, states that heat bonding is not desirable, thus teaching away from the preferred embodiment of the present invention. (Akao at column 1, line 66 to column 2, line 2.) *Tec Air, Inc. v. Denso Mfg. Michigan, Inc.*, 192 F.3d 1353, 1360 (Fed. Cir. 1999) (A reference teaches away when "a person of ordinary skill, upon reading the reference, ... would be led in a direction divergent from the path that was taken by the applicant.") Newly added claims 28-31 are therefore patentably distinguishable from Akao for the additional reason that they are directed to heat bonding.

Additionally, Akao requires that the films be uniaxially molecularly oriented and positioned 45°-90° with respect to one another. (Akao at column 2, lines 10-14 and 62-65.) In the present invention, however, no specific molecular orientation is required for the films, and biaxially stretch-oriented films are preferred. (Specification at page 9, lines 6-18.) As a result of such stretch orientation, the preferred films of the present invention have increased toughness and moisture vapor barrier functionality. (Specification at page 8, lines 7-10.) Because newly added claims 29-31 are directed to films that are stretch-oriented in at least two directions they are additionally distinguished from Akao and do not cover obvious subject matter. For all of the foregoing reasons, Applicants submit that the present invention

is not rendered obvious by Akao.

Foster fails to remedy the deficiencies of Akao. Foster teaches a laminate composition including foam and only one layer of film, wherein the film extends past the edge of the foam. Foster does not disclose or suggest the use of a second film layer adhered to the opposite side of the foam layer, as claimed in the present invention. Foster also states that one of the objects of the invention is cost reduction. (Foster at column 2, lines 2-7 and column 10, lines 54-56.) Adding a second layer of film as in the present invention would result in increased cost compared to the laminated composition described in Foster. Therefore, Foster teaches away from the present invention; there can be no proper motivation to modify a reference in a manner that would be contrary to its expressed purposes.

Most importantly, however, one of skill in the art would not look to Foster to improve the moisture resistance of the Akao structure, as the office Actions seems to suggests, since Akao itself does not indicate that such a problem even exists. To establish a *prima facie* case of obviousness, "there must be some teaching, suggestion, or motivation in the prior art to make the specific combination that was made by the applicant." *In re Oetiker*, 24 U.S.P.Q.2d 1443, 1445 (Fed. Cir. 1992). No such teaching, suggestion, or motivation exists in this case. In the absence of such a showing, a rejection for obviousness is based on impermissible hindsight. *In re Fritch*, 23 U.S.P.Q.2d 1780, 1784 (Fed. Cir. 1992) ("It is impermissible for an examiner, in proffering a 35 U.S.C. 103 rejection, to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art to render the claimed invention obvious.") For all of the foregoing reasons, Applicants respectfully submit that the present invention is not rendered obvious by the combination of Akao and Foster as advanced in the Office Action.

Claims 1-23: Foster/Deibel

The Office Action alleges that:

Foster does not disclose a first film adhered to a first surface of the foam sheet, the first film being comprised of a polyolefin, polyethylene, or various other polyolefin type compounds, the first film also having a bonding layer thereon. Deibel, however, teaches laminated insulating foam boards that may be used in floor construction... It would have been obvious to the skilled artisan at the time this invention was made to combine the teachings of Foster and Deibel to produce a flooring laminate having a first biaxially oriented film adhesively

bonded to a first surface of the foam, motivated by the desire to produce a laminate composite with enhanced strength and resistance to bending and breaking.

(Office Action at page 8.) Applicants traverse this rejection as well. No proper combination of these references provides the invention of claims 1-23.

Foster is directed to a polyethylene foam with a polyethylene film adhered to one side of the foam. Foster, however, does not disclose or suggest the use of a second film adjacent to the opposite surface of the foam. In contrast, the presence of a film on *both* sides of the foam in the present invention contributes to the strength and durability of the composite material. As discussed above, Foster's stated desire to reduce costs teaches away from the addition of a second film layer. Therefore, the present invention is not rendered obvious by Foster because one of skill in the art would not be motivated by the teachings of Foster to increase the strength of the foster composite by adding a second, necessarily-cost-enhancing, film layer.

Deibel fails to remedy the deficiencies of Foster. Deibel describes adhering polymer blend facers (films) to at least one side of a foam layer. The Office Action alleges that "Deibel states that suitable films include biaxially oriented polyolefin (polypropylene or polyethylene) films because biaxially oriented films provide laminated insulated foam boards with enhanced strength and resistance to bending and breaking." (Office Action at page 8.) Applicants respectfully point out that the Examiner has apparently mis-read Deibel. Deibel does not state that biaxially oriented polyolefin films are suitable for the invention claimed therein. The full sentence referred to in the Office Action reads "[b]iaxially oriented polyolefin films ...provide laminated insulation foam boards with enhanced strength and resistance to breaking, *but do so with an offsetting disadvantage.*" (Deibel at column 2, lines 58-61.) Deibel goes on to state that polyolefin films are only minimally recyclable and are therefore not appropriate for use in the laminated boards claimed therein. (Deibel at column 3, lines 5-23.) Rather than suggesting the use of polyolefin films, Deibel in fact *discourages* their use, and therefore does not render the present invention obvious.

Because there is no teaching, motivation, or suggestion in the Foster and Deibel references to combine them in such a way as to make the presently claimed combination, Applicants respectfully submit that the present invention is not rendered obvious by Foster in view of Deibel.

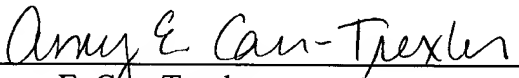
In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of the claim rejections under 35 U.S.C. §103.

Conclusion

In light of the foregoing amendment and arguments, Applicants respectfully request withdrawal of all objections and rejections in the present application. Applicants invite the examiner to contact the undersigned at (215) 557-5966 to clarify any unresolved issues raised by this response.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims:

28. (New) The composite material of claim 1 wherein the first and second films are heat laminated to the foam sheet.
29. (New) The composite material of claim 28 wherein the first and second films are stretch oriented in at least two directions.
30. (New) The composite material of claim 29 further comprising an adhesive positioned along at least a portion of said at least one edge of the second film that extends beyond the corresponding edge of the foam sheet.
31. (New) The composite material of claim 30 further comprising a release layer positioned over said adhesive.